Small Business Innovation Research

SOLID-STATE LASER OSCILLATOR, MODULATOR, AND AMPLIFIER FOR SPACE COMMUNICATIONS

Lightwave Electronics Corporation

Mountain View, CA

INNOVATION

Developed a solid-state device that incorporates a multiple-pass fibercoupled amplifier; compact, high power laser oscillator; and a high-power transmitter based on available low-power modulators.

ACCOMPLISHMENTS

- Laser Amplifier with 52 decibel gain.
- Modulated system with 6.5 Watt peak output.
- Single-frequency laser with 700 mW output.

COMMERCIALIZATION

- Oscillator design used for Series 125 products.
- Over 500 units sold to government and industry.
- Set standard for powerful, coherent YAG laser.
- Product revenue for this technology totals $10M since 1994.
- 30% of revenues from exports.
- 8 production positions created.

Series 125 Fiber-Coupled Laser

GOVERNMENT SCIENCE/APPLICATIONS

- Analog communication for military.
- Acoustic fiber sensing for Navy submarines.
- Advanced gravity wave detection for physicists.
- Intersatellite communications for NASA.

Goddard Space Flight Center

1990 Phase 2, SS-119; 9/8/99

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